ABSTRACT OF THE DISCLOSURE

[0131] An automatic power control system for automatic power control of a semiconductor optical amplifier arranged to amplify a signal has an automatic power control loop which provides automatic power control of the power of the amplified signal for maintaining the power of the amplified signal in the output from the semiconductor optical amplifier at a desired level. The automatic power control loop compensates for an estimated level of amplified spontaneous emission in the detected output power using stored characteristics of the semiconductor optical amplifier. In one type of embodiment, a photodiode detects the output power of the semiconductor optical amplifier and a current detector detects the drive current of the semiconductor optical amplifier and the automatic power control loop uses both the detected output power of the semiconductor optical amplifier and the detected drive current. In another type of embodiment, the automatic power control loop uses only the detected output power of the semiconductor optical amplifier.